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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,041	01/14/2004	William Brandes Shearon	50208 (SE-2031-IP)	4835

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EXAMINER

BEHM, HARRY RAYMOND

ART UNIT PAPER NUMBER

2838

DATE MAILED: 12/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/757,041	SHEARON ET AL.	
	Examiner	Art Unit	
	Harry Behm	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/31/05</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
2. The following title is suggested: a tracking soft start circuit for generating a plurality of soft start voltages where all soft start voltages are prevented until all have been brought to the same prescribed state of operation.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
4. Claims 1-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Goerke (US 5,698,973).
5. With respect to Claim 1, Georke discloses a soft start circuit (Fig. 4) for a power supply comprising: an input port (Fig. 4 Vref) which is adapted to be coupled to said power supply; an output port (Fig. 4 50) from which a soft start output voltage (Fig. 4 Vout) is to be provided; a start-up voltage generator adapted to be coupled to said input port (Fig. 4 Vref); a controlled output power circuit device (Fig. 4 10) coupled to said output port; an operational amplifier (Fig. 4 20) having an output (Fig. 4 12) coupled to said controlled output power circuit

device (Fig. 4 10), a first input (Fig. 4 22) coupled to receive a first prescribed reference voltage (Fig. 4 70), and a second input (Fig. 4 24) coupled to monitor said output port (Fig. 4 50); and a comparator (Fig. 4 110) having an output (Fig. 4 118) coupled to said start-up voltage generator, a first input (Fig. 4 114) coupled to receive a second prescribed reference voltage less than said first prescribed reference voltage, and a second input (Fig. 4 112) coupled to monitor said output port (Fig. 4 50), and wherein said comparator (Fig. 4 110) is operative, in response to the voltage at said output port (Fig. 4 50) exceeding said second prescribed reference voltage, to enable said start-up voltage generator to apply a start-up voltage signal (Fig. 4 node C90-R60) to said first input (Fig. 4 22) of said operational amplifier, whereupon said operational amplifier (Fig. 4 20) drives said output port (Fig. 4 50) with a soft start voltage corresponding to said start-up voltage signal (Fig. 4 node C90-R60).

6. With respect to Claim 2, Goerke discloses the soft start circuit according to claim 1, wherein said comparator (Fig. 4 110) is operative, in response to the voltage at said output port (Fig. 4 50) not exceeding said second prescribed reference voltage (Fig. 4 node 180a-180b), to prevent said start-up voltage generator from applying a start-up voltage signal (Fig. 4 C90-R60) to said first input (Fig. 4 22) of said operational amplifier (Fig. 4 20).
7. With respect to Claim 3, Goerke discloses the soft start circuit according to claim 1, wherein said start-up voltage generator comprises a capacitor (C90) and an input current generator (Fig. 4 Vo) coupled thereto.

8. With respect to Claim 4, Goerke discloses the soft start circuit according to claim 3, wherein said start-up voltage generator further includes a comparator-controlled (Fig. 4 110) discharge switch (Fig. 4 120) coupled with said capacitor (Fig. 4 90) and being operative, in response to the voltage at said output port (Fig. 4 50) not exceeding said second prescribed reference voltage (Fig. 4 node 180a-180b), to prevent said capacitor (Fig. 4 C90) from being charged by said input current generator (Fig. 4 Vo) coupled thereto.
9. With respect to Claim 5, Goerke discloses a soft start circuit architecture for generating a plurality of soft start voltages for application to associated power supply terminals of a power supply system, comprising a plurality of soft start circuits, each respective one of which is operative to controllably generate a soft start voltage (Fig. 4 Vout) waveform in response to a controlled power output device (Fig. 4 10) thereof being brought to a prescribed state of operation, and a control circuit (Fig. 4) which is operative to prevent any of said soft start circuits from generating a soft start voltage waveform (Fig. 4 Vout) until all of said controlled power output devices (Fig. 4 10) of said plurality of soft start circuits have been brought to said prescribed state of operation.
10. With respect to Claim 6, Goerke discloses the soft start circuit architecture according to claim 5, wherein a respective one of said plurality of soft start circuits comprises: an input port (Fig. 4 Vref) which is adapted to be coupled to a power supply; an output port (Fig. 4 50) from which a soft start output voltage (Fig. 4 Vout) is to be provided; a start-up voltage generator adapted to be

coupled to said input port (Fig. 4  $V_{ref}$ ); a controlled output power circuit device (Fig. 4 10) coupled to said output port (Fig. 4 50); an operational amplifier (Fig. 4 20) having an output (Fig. 4 12) coupled to said controlled output power circuit device (Fig. 4 10), a first input (Fig. 4 22) coupled to receive a first prescribed reference voltage (Fig. 4 70), and a second input (Fig. 4 24) coupled to monitor said output port (Fig. 4 50); and a comparator (Fig. 4 110) having an output (Fig. 4 118) coupled to said start-up voltage generator, a first input (Fig. 4 114) coupled to receive a second prescribed reference voltage (Fig. 4 node 180a – 180b) less than said first prescribed reference voltage (Fig. 4 70), and a second input (Fig. 4 112) coupled to monitor said output port (Fig. 4 50), and wherein said comparator (Fig. 4 110) is operative, in response to the voltage at said output port (Fig. 4 50) exceeding said second prescribed reference voltage (Fig. 4 node 180a-180b), to enable said start-up voltage generator to apply a start-up voltage signal to said first input (Fig. 4 22) of said operational amplifier (Fig. 4 20), whereupon said operational amplifier drives said output port (Fig. 4 50) with a soft start voltage (Fig. 4  $V_{out}$ ) corresponding to said start-up voltage signal (Fig. 4 node C90-R60); and wherein said control circuit is operative, in response to the voltage ( $V_{ref}$ ) at the output port of any of said soft start circuits not exceeding said second prescribed reference voltage (Fig. 4 node 180a – 180b), to prevent the start-up voltage generators of all of said soft start circuits from applying start-up voltage signals to first inputs (Fig. 4 22) of their operational amplifiers (Fig. 4 20).

11. With respect to Claim 7, Goerke discloses the soft start circuit architecture according to claim 6, wherein said start-up voltage generator comprises a capacitor (Fig. 4 90) and an input current generator (Fig. 4 Vo) coupled thereto.
12. With respect to Claim 8, the soft start circuit architecture according to claim 7, wherein said start-up voltage generator further includes a comparator-controlled (Fig. 4 110) discharge switch (Fig. 4 120) coupled with said capacitor (Fig. 4 90) and being operative, in response to the voltage at said output port (Fig. 4 50) not exceeding said second prescribed reference voltage (Fig. 4 node 180a-180b), to prevent said capacitor (Fig. 4 90) from being charged by said input current generator (Fig. 4 Vo) coupled thereto.
13. With respect to Claim 9, a soft start circuit for a power supply comprising: an input port (Fig. 4 Vref) which is adapted to be coupled to said power supply and to which a capacitor (Fig. 4 C90) is coupled; a current source for controllably charging said capacitor (Fig. 4 Vo); a controlled switch (Fig. 4 120) coupled to said input port and being controllably operative to maintain said capacitor (Fig. 4 90) in a discharged state for a first condition of said soft start circuit, but to allow said capacitor to charge and thereby generate a soft start voltage (Fig. 4 node C90-R60) for a second condition of said soft start circuit; an output port (Fig. 4 50) from which a soft start output voltage is to be provided; a controlled output power circuit device (Fig. 4 10) coupled to said output port; an operational amplifier (Fig. 4 20) having an output (Fig. 4 12) coupled to said controlled output power circuit device (Fig. 4 10), a first input (Fig. 4 22) coupled to receive a first

prescribed reference voltage (Fig. 4 70), and a second input (Fig. 4 24) coupled to monitor said output port (Fig. 4 50); and a comparator (Fig. 4 110) having an output coupled to said controlled switch (Fig. 4 120), a first input (Fig. 4 114) coupled to receive a second prescribed reference voltage (Fig. 4 node 180a-180b) less than said first prescribed reference voltage (Fig. 4 70), and a second input (Fig. 4 112) coupled to monitor said output port (Fig. 4 50), and wherein said comparator (Fig. 4 110) is operative, in response to the voltage (Fig. 4 Vout) at said output port (Fig. 4 50) not exceeding said second prescribed reference voltage (Fig. 4 180a-180b) corresponding to said first condition of said soft start circuit, to cause said switch (Fig. 4 120) to maintain said capacitor in a discharged state and thereby prevent a soft start voltage (Fig. 4 node C90-R60) from being generated thereby and, in response to the voltage at said output port (Fig. 4 50) exceeding said second prescribed reference voltage (Fig. 4 114) corresponding to said second condition of said soft start circuit, to allow said capacitor (Fig. 4 90) to charge and thereby generate said soft start voltage.

14. With respect to Claim 10, Goerke discloses the soft start circuit according to claim 9, wherein said first prescribed reference voltage (Fig. 4 70) corresponds to the product of current generated by said current source (Fig. 4 Vo) and a reference resistor (Fig. 4 130) coupled to said first input (Fig. 4 22) of said operational amplifier (Fig. 4 20).
15. With respect to Claim 11, Goerke discloses the soft start circuit according to claim 9, wherein said first prescribed reference voltage (Fig. 4 70) corresponds



to the product of a current generated by a further current source (Fig. 4 Vo) and a reference resistor (Fig. 4 130) coupled to said first input (Fig. 4 22) of said operational amplifier (Fig. 4 20).

***Allowable Subject Matter***

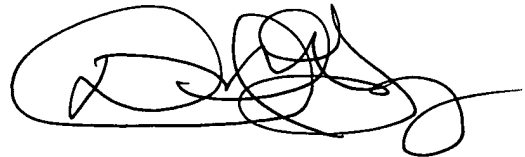
16. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
17. The following is an examiner's statement of reasons for allowance: the prior art does not suggest implementing a tracking soft start circuit for generating a plurality of soft start voltages where all soft start voltages are prevented until all have been brought to the same prescribed state of operation where a current mirror is used having an input coupled to said output port, and wherein an output of said current mirror is coupled to said second input of said operational amplifier.
18. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ferencz (US 6,683,442) discloses a tracking soft start topology which ensures the low voltage supplies are not powered after the higher voltage supplies by powering the lower voltage supplies from highest voltage.

Rose (US 6,691,239) discloses sequentially enabling the supplies only after they have reached a voltage reference.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Behm whose telephone number is 571-272-8929. The examiner can normally be reached during business hours EST.
21. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
22. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Gray  
Primary Examiner

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